EXECUTIVE SUMMARY

Mine Name: North Lily Project
Operator: Affiliated Mining Inc.
Local Contact: Bart Hanford
(801) 363-1111
Telephone: (702) 329-7167
Contact Person: Doug Lee
Life of Mine: Four-Six Years

I.D. No. PRO/023/007
County: Juab
New/Existing: New
Mineral Ownership: North Lily Mining Co
Surface Ownership: North Lily Mining Co
Lease No.(s): --
Permit Term: 10 years

Legal Description: Section 35, Township 10 South, Range 3 West
Mineral(s) to be Mined: Precious Metals
Mining Methods: Tailings Reprocessing
Acres to be Disturbed: Less than Five Acres
Present Land Use: Tailings Dump - Grazing
Postmining Land Use: Tailings Storage - Wildlife
Variances from Reclamation Standards (Rule M-10) Granted: None

Soils and Geology:

Soil Description: Soils on site are extremely limited or absent: borrowed soils are suitable to a depth of four feet; loamy; approximately 40% sand, 40% silt, 20% clay
pH: 7.8-8.8
Special Handling Problems: Soil will be borrowed to cover the mine plan area from a a nearby site.
Geology Description: Black slag and red mill tailings from Anaconda's early 20th Century operation; located on overburden overlying the typical paleozoic section just east of Eureka.

Hydrology:

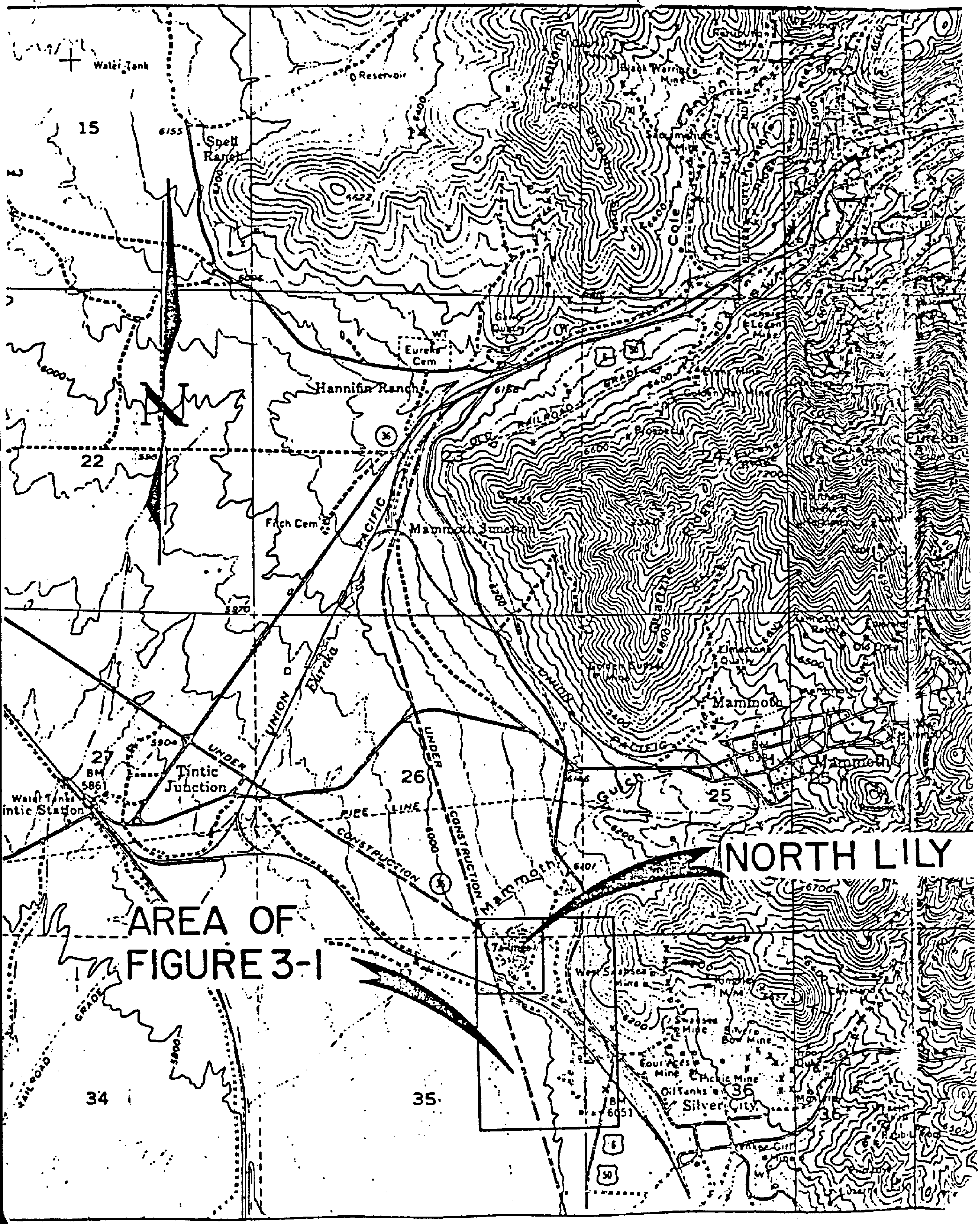
Ground Water Description: The nearest well is more than 1/2 mile away and produces from a 530 foot depth. No excavations or wells will be utilized in the mining scene.
Surface Water Description: Two small drainages channel runoff across the relatively flat property and will not effect the disturbed site.
Water Monitoring Plan: Residual tails will be placed in old foundations approved as suitable by the State Health Department (see attachments).

Ecology:

Vegetation Type(s); Dominant Species: Sagebrush, rabbitbrush, Western wheatgrass, Indian ricegrass, squirreltail-pinyon, juniper.
Percent Surrounding Vegetative Cover: Average 26.6 percent; 52 percent bare ground, 21 percent rocks and litter
Wildlife Concerns: None
Surface Facilities: Ball Mill, Flotation Cells, Six Leach Tanks, Two Electrical Vans; Mobile Office Trailer; Two Standard Metal Buildings 40' x 80'.
Mining and Reclamation Plan Summary: (See attached published notice.)

Surety:

Amount: $95,760.00
Form: Irrevocable Letter of Credit
Renewable Term: One Year


NORTH LILY
AREA OF
FIGURE 3-1
Water Tank
Reservoir
Snell Ranch
Hannifin Ranch
Eureka Cem
Fitch Cem
Mammoth Junction
Tintic Junction
Tintic Station
Water Tanks
Mammoth
Mammoth Gulch
Silver City
Black Warrior Mine
Limestone Quarry
Oil Tanks
Four Aces Mine
Swansea Mine
West Swansea Mine
Pacific Mine
Tailings
UNION PACIFIC
UNDER CONSTRUCTION
PIPE LINE
RAILROAD GRADE
Eureka
Cole Canyon
15
22
27
26
25
34
35
36
BM 5861
5904
5970
6000
6155
6101
6146
6051

BEFORE THE BOARD OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
IN AND FOR THE STATE OF UTAH

---ooOoo---

IN THE MATTER OF APPROVAL OF THE NOTICE OF INTENT AND RECLAMATION PLAN SUBMITTED BY AFFILIATED MINING INC., JUAB COUNTY, UTAH	*	ORDER TO SHOW CAUSE NO. PRO/023/007

---ooOoo---

THE STATE OF UTAH TO ALL OPERATORS, TAKERS OF PRODUCTION, MINERAL AND ROYALTY OWNERS, AND PARTICULARLY ALL PERSONS INTERESTED IN TOWNSHIP 10 SOUTH, RANGE 3 WEST, SECTION 35, JUAB COUNTY, UTAH.

Notice is hereby given that tentative approval was given by the Division of Oil, Gas and Mining, on August 31, 1984, to Affiliated Mining Inc., to reprocess old mine tailings and dumps for extraction of gold and silver in Township 10 South, Range 3 West, Section 35, Juab County, Utah. The name of the operation is the North Lily Project, and the person representing the company in this matter is Mr. Bart Hanford, Project Engineer, 555 First Security Building, 405 South Main Street, Salt Lake City, Utah 84111.

Affiliated Mining Inc., has fulfilled obligations under the Utah Mined Land Reclamation Act of 1975 (Section 40-8, UCA 1953, as amended), and will employ the following mining and reclamation practices on approximately six acres of patented or fee land owned by North Lily Mining Company.

<u>During Operations:</u>

1. Affiliated Mining Inc., will extract silver and gold from old tailings and mine dumps on company property by crushing, screening, flotation and cyanidation.

2. A horizontal belt filter system for dewatering and washing the leached tailings will be used. Neutralization and detoxification of tailings using this method will eliminate the need for tailings impoundments.

3. Vertical profiles of existing piles will be reduced and the creation of a broad, flatter, reprocessed tailings pile will fill in and cover hazardous portions of an old, abandoned mill site.

4. Reprocessed tails will be smoothed, topsoiled and revegetated as they become available during operations.

5. Estimated duration of operations is 48 to 72 months.

After Operations:

1. All structures and foundations installed for this operation will be removed and the areas will be regraded, topsoiled and revegetated to achieve approximate original topography and vegetative habitat.

2. All reclamation will be completed within one year of completion of milling activities.

3. Revegetation will be visually evaluated regularly and soil samples taken yearly. If poor results are obtained, a consultant will be retained to restore the land to State standards.

Reclamation performance surety acceptable to the Board of Oil, Gas and Mining will be established prior to issuing final approval of the mining and reclamation plan.

Any person or agency aggrieved by this tentative decision is hereby required to submit written protest within 30 days of the date of publication to the Division of Oil, Gas and Mining, 4241 State Office Building, Salt Lake City, Utah, 84114, to the attention of Thomas N. Tetting, setting forth factual reasons for their complaint and thereafter, at a time and place to be established, appear before the Board of Oil, Gas and Mining to show cause, if any, why this plan should not be approved.

DATED this 6th day of Sept., 1984.

STATE OF UTAH
BOARD OF OIL, GAS AND MINING

Marjorie L. Larson
Marjorie L. Larson
Administrative Assistant

File
North Lily

Scott M. Matheson
Governor

STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110-2500

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS
Community Health Services
Environmental Health
Family Health Services
Health Care Financing

OFFICES
Administrative Services
Community Health Nursing
Management Planning
Medical Examiner
State Health Laboratory

August 22, 1984
533-6108

RECEIVED
SEP 14 1984
DIVISION OF OIL GAS & MINING

Kenneth Lee Alkema, Director
Room 474 801-533-6121

JIM
SEP 17 1984

Doug Lee
Affiliated Mining Corp.
555 First Security Bldg.
405 South Main Street
Salt Lake City, Utah 84111

RE: Intent to Approve Gold & Silver Tailing Reclaim Process, Juab County

Dear Mr. Lee:

Plans and specifications for your proposal to construct a gold and silver tailing reclaim process have been evaluated and have been found to be consistent with the requirements of the Utah Air Conservation Regulations (UACR) and the Utah Air Conservation Act.

The Executive Secretary will publish notice of intent to issue an approval order in the Salt Lake Tribune and Deseret News on August 27, 1984. A 30-day period following the publishing date will be allowed during which your proposal and the Executive Secretary's evaluation of the impact on air quality will be available for review and comment. If within 15 days of publication of notice anyone so requests, a hearing will be held.

Unless modified, the approval order would be based upon the following operating conditions:

1. The mill and site shall be constructed according to the plans and specifications submitted with the notice of intent dated June 8, 1984, the information reported at the predesign conference on May 25, 1984, and the Oil, Gas & Mining Plan dated August 25, 1983, revised May 30, 1984.

2. Visible emissions from any point in the system shall not exceed 20% opacity as measured by EPA Reference Method 9, 40 CFR Part 60 Appendix A.

3. Haul road fugitive emissions shall be controlled by application of water two times per eight hour shift unless daily precipitation exceeds 0.05 inches of water.

4. The Executive Secretary shall be notified upon startup as an initial compliance inspection is required.

EXHIBIT 6

Colorado School of Mines Research Institute

5920 McINTYRE STREET • GOLDEN, COLORADO 80403
PHONE (303) 279-2581 • TELEX 754211 • CSM Res Gldn

CSMRI

April 10, 1984
CSMRI Project NP-841074

Mr. Bart Hanford
Lee Mining Corporation
P.O. Box 266
Paxton, IL 60957

Re: Detoxification of North Lily/Dragon Consolidated Cyanide Leach Tailings

Dear Bart:

As part of the North Lily process evaluation, CSMRI was requested by Lee Mining to investigate detoxifying the North Lily cyanide leach residue. The details and the results of this preliminary study are discussed as follows:

The process flowsheet proposed by Lee Mining calls for dewatering and washing the cyanide leach residue on a horizontal vacuum belt filter. As an alternate to impounding the residue in a conventional tailings pond, detoxifying the material on the belt filter was considered. Conceivably, application of a hypochlorite solution to the final wash section of the belt would produce a cyanide-free residue. The residue could then be used to reclaim the site and the perpetual care problems associated with a tailings pond could be avoided.

The experimental work was based on the rationale that only the water-soluble species of cyanides are of concern. Prior studies conducted at CSMRI have shown that leaching similar residues for 2 hours in agitated vessels at 20% solids with water solubilizes approximately 95% of the water-soluble cyanides. The experiments performed for Lee Mining were based on this previous experience.

Two experiments were conducted in which 1.31 wt % NaOCl solution, in volumes equivalent to one cake displacement, were pulled by vacuum through simulated (repacked) filter cakes over a 90-second period. A 30-second vacuum dry period was applied, and the treated cakes were "cured" for 16 hours. The cured cakes were then reslurried with water and the filtrate analyzed for cyanides.

The filter cakes were supplied by Lee Mining from experiments conducted in their own laboratories. Reportedly, the cakes were representative of cakes that would be produced in actual practice. The test procedures and cake composition are described in the attached Exhibit 1.

The results of each test (duplicate conditions) show no water-soluble, chlorinatable species of cyanide remained in the "cured" filter cakes. The chemical consumption of NaOCl was determined to be on the order of 1.0 lb/ tons of dry residue. However, because some unreacted NaOCl remained with the solids, the total NaOCl consumed was found to be approximately 2.0 lb (100% reagent) per ton of dry solids.

The results of this program suggest that this detoxification procedure should be considered in lieu of conventional tailings impoundment.

Feel free to call if you have any questions or if we can be of any further assistance.

Sincerely,

Hal D. Peterson
Technical Consultant
Process Division

/rms
enc.

13x14/8 # 6

PROPOSED TAILS DISPOSAL AND RECLAMATION

Lee Mining wants to achieve neutralization and detoxification of its tailings discharge by use of a horizontal belt filter, so that, the waste product can be used to reclaim the site. The solution from the filtration process is recycled as part of the requirement for the Mill Water System. Because of the low cake moisture content, the tails do not need to be imponded to be contained on the site.

Enclosed you will find Plate I that depicts the site as it is now. Numerous excavations and foundations exist. Our legal department suggest that these foundations, which are equivalent to 20-30 feet cliffs, be dealt with as quickly as possible. The company feels the best way to eliminate the hazards including the numerous excavations, is to fill them with process waste. Since the contemplated material for disposal is "toxic" as described by Rule M-2 (K), Lee Mining has retained the Colorado School of Mines Research Institute to develop a technique, which would render the tailings harmless, so as to comply with Rule M-10, Reclamation Standards, Section (6) for Toxic Materials of the Mined Reclamation Act, Title 40-8. The Research Institute has developed such a process for neutralization of the tails and Lee Mining believes they should be permitted to use such a process in restoration of the site that has been marred by excavations and old ruins.

The Plan

The Plan, consisting of six parts, is best demonstrated by a graphical display presented in Figure II. These parts include: a vacuum, filtration separation of gold bearing solution from pulp, two stages of counter current wash, neutralization by closed loop chlorination of the filter cake, cake oxidation and cure, disposal of cake to appropriate site, and finally revegetation of filled areas.

In Part 1, the pulp from agitated cyanide leach is distributed evenly over the belt filter. The belt speed is controlled to obtain a cake thickness of + 3/8 of an inch. The filter cloth retains the solids and the solution reports to the pregnant storage holding tank.

In Part 2, the cake advances on the belt and is washed in two stages. A diluted wash solution passes through the cake twice and lowers its cyanide content. The wash solution passes through activated charcoal and it is recycled to the Mill Water Storage System.

The filter cake in Part 3, low in cyanide after the wash, is advanced to near the end of the belt. A solution containing 1.31 wt. % NaOCl is flooded on to the cake. The vacuum pulls the solution thru the cake, so that, 100% of the material is contacted by the neutralizing solution. The filtrate then goes to storage where the depleted solution is brought back to its original strength. The cycle is repeated.

Part 4 involves "curing the cake", which means sufficient time at atmospheric conditions must be given for oxidation of the cake to be complete, so that, any cyanide remaining in the residue will be completely oxidized. This time was determined to be 16 hours by the Colorado School of Mines Research Institute. However, greater reliability would be obtained by extending the curing period one to two days.

Self monitoring test are planned periodically generally with daily production, to ensure neutralization of the tailings before going to land fill. Justification for neutralization is given in a report by the Colorado School of Mines Research Institute titled "Detoxification North Lilly / Dragon Consolidated Cyanide Leach Tailings", which appears in Appendix A.

The land fill of Part 5 of the plan calls for removal of the cured cake and application at the southern end. The site will be filled from south to north as the project proceeds. The tails contain the proper moisture so that, they can be wheel compacted.

In Part 6 native vegetation will be applied to the tails. Experimental patches will be applied as the land fill advances from south to north. The ultimate goal of the project is best illustrated in Plate III.

We feel that our method for achieving neutralization of tailings, utilizing belt filtration, is far superior to the requirements established for cyanide heap leach dumps. We believe our plan offers a sensible way for disposing of waste products, while using them to restore the site.

The existing pile presents an enviornmental risk for damage far greater than the re-processed tails. Toxic elements will be removed in the process through grinding, flotation and cyanidation. They will be subjected to a grind and leach many times more powerful than leaching at normal atmospheric conditions. Any toxic elements remaining in the residue would surely be inert to atmospheric leaching. The majority of the toxic elements would be removed by flotation or dissolved in the caustic-cyanide leach. Flotation will remove all the pyrite, lead and zinc in a bulk flotation. The toxic elements associated with these minerals would be removed with the metals and the concentrate would be shipped to the smelter. In the leach section, toxic elements will be dissolved into solution. They will be removed from the system by activated carbon. The carbon containing the toxic elements will be burned at the smelter with the precious metals. The concentration of toxic elements in the residue will be far lower than the concentration of toxic elements in the existing pile after this processing. Cyanide remaining in the residue will be made chemically inert by chlorination. A Laboratory Report (Exhibit 6) substantiates this statement.